



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/120,608	07/22/1998	LORETTA GREZZO PAGE	IJ-0005	2363

23906 7590 01/23/2003

E I DU PONT DE NEMOURS AND COMPANY
LEGAL PATENT RECORDS CENTER
BARLEY MILL PLAZA 25/1128
4417 LANCASTER PIKE
WILMINGTON, DE 19805

EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

26

DATE MAILED: 01/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/120,608

Applicant(s)

PAGE ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ -Responsive to communication(s) filed on 29 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s). _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/29/02 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 13-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (EP 0851014) in view of Ma et al. '698 (U.S. 5,085,698).

Ma et al. '014 disclose an ink jet ink suitable for ink jet printing wherein the ink contains (1) aqueous carrier medium containing 60-95% water and water-soluble organic solvent (page 2, line 52-page 3, line 4) which would intrinsically form single phase vehicle with water, (2) insoluble colorant such as pigment (page 3, lines 9-10 and 30-32), (3) dispersant (page 3, line 44), (4) surfactant such as Zonyl which is a fluorinated surfactant (page 5, line 48 and page 20, line 21), and (5) graft copolymer (page 5, lines 17 and 31-32). It is further disclosed that the ink is suitable for printing on fabric, i.e. textiles (page 6, line 20).

The graft copolymer contains a backbone containing hydrophobic monomers such as methyl (meth)acrylate, ethyl (meth)acrylate, propyl (meth)acrylate, n-butyl (meth)acrylate, phenyl (meth)acrylate, hexyl (meth)acrylate, 2-ethylhexyl (meth)acrylate, benzyl (meth)acrylate, phenylethyl (meth)acrylate, and hydroxyethyl (meth)acrylate (page 4, lines 11-20). The hydrophilic side chains are formed by copolymerizing non-ionic monomers such as 2-(2-

methoxyethoxy)ethyl (meth)acrylate, ethoxytriethyleneglycol methacrylate, methoxy polyethyleneglycol methacrylate, and polyethyleneglycol methacrylate (page 4, lines 36-40). The amount of the functional hydrophilic groups is adjusted to control the solubility of the copolymer (page 4, lines 28-29).

With respect to the number average molecular weight, M_n , of the side chains, while it is disclosed that the hydrophilic side chains have a molecular weight of 200-1000 (page 4, lines 39-40), there is no explicit disclosure of M_n of the side chains in the reference. However, given that M_n is defined as $\sum N_i M_i / \sum N_i$ where N is the number of side chains and M is the molecular weight of an individual side chain, and in light of the fact that the "maximum" value of M is 1,000 as disclosed above, it is evident that M_n will be at least 1,000, and thus meets the claimed number average molecular weight requirement of 1,000-2,000.

Although there is no explicit disclosure that the graft copolymer is a film-forming binder, it is natural to infer that since the reference graft copolymer has a hydrophobic backbone and non-ionic hydrophilic side chains and comprises monomers identical to those presently claimed, that the reference graft copolymer will intrinsically function as a film-forming binder.

The difference between Ma et al. '014 and the present claimed invention is the requirement in the claims of (a) specific types of solvents and (b) an ink that is washfast.

With respect to difference (a), Ma et al. '014 disclose that at least one water-soluble solvent is used in the aqueous carrier medium and that the particular mixture depends on the requirements of the specific application such as desired surface tension, viscosity, drying time, etc. (page 2, lines 52-54). Ma et al. '014 then refers to Ma et al. '698 for specific types of water-soluble solvents.

Ma et al.'698, which is drawn to ink jet inks, disclose the use of solvents such as pyrrolidone and glycol ethers (col.9, lines 3-10).

Thus, one of ordinary skill in the art would have recognized that the choice of solvents depends on the desired end use, and to choose particular solvents including those presently claimed, in order to produce an ink possessing optimal drying time, surface tension, and viscosity, and thereby arrive at the claimed invention.

With respect to difference (b), there is no explicit disclosure in Ma et al. '014 that the ink is washfast. However, given that the Ma et al. '014's ink contains ingredients identical to those presently claimed, i.e. vehicle, dispersant, pigment, surfactant, and graft copolymer, it is natural to infer that the ink is intrinsically washfast.

Response to Arguments

5. Applicants arguments filed 3/29/02 have been fully considered but they are not persuasive.

Specifically, applicants argue that while the hydrosol of Ma et al. '014 is water-insoluble as presently claimed, the hydrosol is not soluble in aqueous vehicle as presently claimed. Rather, the hydrosol is insoluble in the aqueous vehicle.

As evidence to support their position, applicants point to page 4, lines 11-12 of Ma et al. '014 which states that the hydrosol polymer is dispersed as a separate phase in the aqueous carrier medium and page 4, lines 27-29 of Ma et al. '014 which applicants state makes clear that the hydrosol should not be soluble in the aqueous vehicle.

With respect to page 4, lines 27-29, it is the examiner's position that this portion of the reference does not teach that the hydrosol should not be soluble in the aqueous vehicle, but rather that the hydrosol should not be completely soluble in the aqueous vehicle. Due to the presence of hydrophilic functional groups, it is clear that the hydrosol of Ma et al. '014 will have some degree of solubility in the aqueous vehicle and thus, will not be completely insoluble in the aqueous vehicle as argued by applicants. The hydrosol, due to the presence of functional groups, will be partly soluble in water.

This is identical to the graft copolymer of the present claims. Given that the graft copolymer of the present claims is insoluble in water and given that the aqueous vehicle of the present claims is mostly water, it is clear that the graft copolymer of the present invention is not completely soluble in the aqueous vehicle which is the same situation as found in Ma et al. '014. While it is agreed that Ma et al. '014 teaches away from complete solubility in the aqueous vehicle, it is the examiner's position given that the present claims are open to any degree of solubility and given that the graft copolymer of the present invention itself is not completely soluble in the aqueous vehicle, that the hydrosol of Ma et al. '014, which due to the presence of hydrophilic functional groups must necessarily possess some degree of solubility in the aqueous vehicle, meets the limitations of the present claims.

While it is agreed that Ma et al. '014 disclose that the hydrosol polymers are dispersed as a separate phase in the aqueous carrier medium, Ma et al. '014 also disclose that the polymer can contain function groups, which affect the solubility of the hydrosol. It is noted that the present claims do not specify any degree of solubility and thus the scope of the present claims encompasses binders of varying degrees of solubility in the aqueous medium. Given that the

hydrosols of Ma et al. '014 contain some amount of functional groups, i.e. hydrophilic monomers, it is the examiner's position that these hydrosols do have some degree of solubility in the aqueous medium and that this solubility can be and is fine tuned by the kind and amount of functional groups present. Controlling solubility is recognized in the present specification, page 6, lines 32-34, which discloses that by adjusting the hydrophilic/hydrophobic balance of the polymer, the solubility of the polymer in aqueous vehicle can be tailored. Additionally, page 4, lines 26-29 of Ma et al. '014 disclose that a balance must be struck between on the one hand, having too few functional groups that would fail to prevent the hydrosol polymer from self-stabilization and, on the other hand, having too many functional groups that would cause the polymer to dissolve in the aqueous medium.

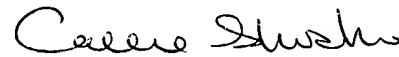
Further, applicants argue that in certain instances that two-phase dispersed systems can be converted into single-phase mixture by presence of co-solvent which is miscible in water and in which the polymer is miscible or soluble. Given that Ma et al. '014 disclose graft copolymer made from the same monomers as presently claimed as well as water-soluble solvent as presently claimed (including specific types of solvent when used in combination with Ma et al. '698), it is not clear why the graft copolymer of Ma et al. '014 does not have the same solubility in aqueous vehicle as presently claimed.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

Art Unit: 1714

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho
Examiner
Art Unit 1714

CS
January 22, 2003